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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,667	08/05/2003	Katherina Babich	YOR920030174US1	7152

7590 12/14/2004

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EXAMINER

WALKE, AMANDA C

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/634,667

Applicant(s)

BABICH ET AL

Examiner

Amanda C Walke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Kennedy et al (6,506,497).

Kennedy et al disclose anti-reflective coating materials for deep ultraviolet photolithography include one or more organic light-absorbing compounds incorporated into spin-on-glass materials. Suitable absorbing compounds are strongly absorbing over wavelength ranges around wavelengths such as 365 nm, 248 nm, and 193 nm that may be used in photolithography. A method of making absorbing spin-on-glass materials includes combining one or more organic absorbing compounds with alkoxysilane or halosilane reactants during synthesis of the spin-on-glass materials.

An anti-reflective coating material for deep ultraviolet photolithography includes one or more organic absorbing compounds incorporated into a spin-on-glass (SOG) material. The spin-on-glass materials include methylsiloxane, methylsilsesquioxane, phenylsiloxane, phenylsilsesquioxane, methylphenylsiloxane, methylphenylsilsesquioxane, and silicate polymers. As used herein, spin-on-glass materials also include hydrogensiloxane polymers of the general formula $(H_{0-1.0}SiO_{1.5-2.0})_x$ and hydrogensilsesquioxane polymers, which have the formula $(H_{0-1.5}SiO_{1.5})_x$, where x is greater than about 8. Also included are copolymers of hydrogensilsesquioxane

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and alkoxyhydridosiloxane or hydroxyhydridosiloxane. Spin-on-glass materials additionally include organohydridosiloxane polymers of the general formula $(H_{0-1.0} SiO_{1.5-2.0})_n (R_{0-1.0} SiO_{1.5-2.0})_m$, and organohydridosilsesquioxane polymers of the general formula $(H SiO_{1.5})_{sub.n} (R SiO_{1.5})_{sub.m}$, where m is greater than 0 and the sum of n and m is greater than about 8 and R is alkyl or aryl. Coating solutions of spin-on-glass materials incorporating absorbing compounds are used to form anti-reflecting films on various layers in integrated circuit devices. Absorbing compounds suitable for use with the present invention are strongly absorbing at wavelengths less than about 375 nm or less than about 260 nm. In particular, suitable absorbing compounds are strongly absorbing over at least an approximately 10 nm wide wavelength range around wavelengths such as 248 nm, 193 nm, or other ultraviolet wavelengths, such as 365 nm, that may be used in photolithography. The chromophores of suitable compounds typically have from one to three benzene rings that may or may not be fused. Incorporatable absorbing compounds have an accessible reactive group attached to the chromophore, the reactive groups including hydroxyl groups, amine groups, carboxylic acid groups, and substituted silyl groups with silicon bonded to one, two, or three alkoxy group or halogen atom substituents. The reactive groups may be directly bonded to the chromophore or the reactive groups may be attached to the chromophore through a hydrocarbon bridge.

Examples of suitable organic absorbing compounds include anthraflavic acid, 9-anthracene carboxylic acid, 9-anthracene methanol, alizarin, quinizarin, primuline, 2-hydroxy-4(3-triethoxysilylpropoxy)-diphenylketone, rosolic acid, triethoxysilylpropyl-1,8-naphthalimide, 9-anthracene carboxy-methyl triethoxysilane, phenyltriethoxysilane, azo compounds, such as 4-phenylazophenol, and mixtures thereof.

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Given the teachings of the reference, the instant claims are anticipated by Kennedy et al.

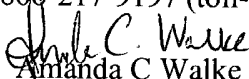
Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nguyen et al (6,664,024), Lin et al (6,187,505, 6,344,305), Lichtenhan et al (6,660,823, 6,100,417), kamo et al (6,759,460), Sellinger et al (6,517,958), Tsai et al (US 2004/0067633), Nozue et al (4,626,556), Hsaio et al (6,569,932), Svejda et al (6,767,930), Aoi et al (5,877,080), are cited for their teachings of similar polymeric materials.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda C Walke whose telephone number is 571-272-1337. The examiner can normally be reached on M-R 5:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Amanda C Walke
Examiner
Art Unit 1752

ACW
December 12, 2004